U.S. Patent: 5,216,135

Reply to OA of April 21, 2005

AMENDMENTS TO THE CLAIMS:

Please cancel claims 28-31 without prejudice and add new claims 32-35.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-6 (Canceled).

Claim 7 (Previously Presented): A diazodisulfone compound of the formula:

wherein R^1 is a branched alkyl group having 3 to 8 carbon atoms; and R^2 is a cyclic alkyl group having 3 to 8 carbon atoms.

Claim 8 (Previously Presented): A diazodisulfone compound of the formula:

wherein R¹ is a cyclic alkyl group in which the alkyl group is hexyl; and R² is a cyclic alkyl group in which the alkyl group is hexyl.

Claim 9 (Previously Presented): A diazodisulfone compound of the formula:

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wherein R^1 is a branched alkyl group in which the alkyl group is butyl; and R^2 is a branched alkyl group in which the alkyl group is butyl.

Claim 10 (Previously Presented): A diazodisulfone compound of the formula:

$$R^1SO_2CSO_2R^2$$
 \parallel
 N_2

wherein R¹ is cyclohexyl; and R² is cyclohexyl.

Claim 11 (Previously Presented): A diazodisulfone compound of the formula:

wherein R¹ is a branched butyl; and R² is a branched butyl.

Claim 12 (Currently Amended): A reduced light exposure energy photosensitive resist compound-material comprising:

an effective amount of a diazodisulfone compound of formula (I):

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R¹ and R² being independently branched or cyclic alkyl groups having 3 to 8 carbon atoms_

and the resist material being used for a light source of 300 nm or less at a reduced light exposure

energy amount to generate an acid to create a positive tone pattern on a surface and

a polymer which is difficulty soluble in an alkaline developing solution but which can

become alkali-soluble by the action of an acid,

wherein the effective amount of the resist compound is used for a light source of 300 nm

or less at a reduced light exposure energy amount to generate an acid to create a positive tone

pattern on a surface having a polymer, which is difficultly soluble in an alkaline developing

solution but which can become soluble by the action of an acid, and the resist diazodisulfone

compound is sufficient for the polymer on an in the exposed portion to become alkali-soluble by

a chemical change with the acid generated from the resist diazedisulfone compound by light

exposure energy.

Claim 13 (Currently Amended): The photosensitive resist compound material of

claim 12, wherein the light source sources is selected from the group consisting of deep UV

light and KrF excimer laser light (248.4 nm).

Claim 14 (Currently Amended): A reduced light exposure energy photosensitive

resist compound-material comprising:

an effective amount of a diazodisulfone compound of formula (I):

R¹SO₂CSO₂R²

11,

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R¹ and R² being independently branched or cyclic alkyl groups having 3 to 8 carbon atoms_, and the compound of formula (I), which when exposed to KrF eximer light generates an acid by the following reaction scheme:

and,

a polymer which is difficulty soluble in an alkaline developing solution but which can become alkali soluble by the action of an acid;

wherein the photosensitive resist compound, when exposed to KrF eximer light, generates an acid by the following reaction scheme:

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and the photosensitive resist effective amount of the diazodisulfone compound is sufficient for the a polymer, which is difficultly soluble in an alkaline developing solution but which can become soluble by the action of an acid, in the on an exposed portion of an exposed surface to become alkali-soluble by a chemical change with the acid generated from the photosensitive resist diazodisulfone-compound by light exposure energy.

Claims 15 – 31: Canceled

Claim 32 (New): The diazodisulfone compound of claim 7, wherein the compound is one used for a light source of 300 nm or less at a reduced light exposure energy amount to generate an acid to create a positive tone pattern on a surface.

Claim 33 (New): The diazodisulfone compound of claim 7, wherein when the compound is exposed to KrF eximer light it generates an acid by the following reaction scheme:

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Claim 34 (New): The diazodisulfone compound of claim 8, wherein the resist

compound is used for a light source of 300 nm or less at a reduced light exposure energy

amount to generate an acid to create a positive tone pattern on a surface having a polymer,

which is difficultly soluble in an alkaline developing solution but which can become soluble by

the action of an acid, and the resist compound is sufficient for the polymer on an exposed

portion to become alkali-soluble by a chemical change with the acid generated from the resist

compound by light exposure energy.

Claim 35 (New): The diazodisulfone compound of claim 9, wherein the resist

compound is used for a light source of 300 nm or less at a reduced light exposure energy

amount to generate an acid to create a positive tone pattern on a surface having a polymer,

which is difficultly soluble in an alkaline developing solution but which can become soluble by

the action of an acid, and the resist compound is sufficient for the polymer on an exposed

portion to become alkali-soluble by a chemical change with the acid generated from the resist

compound by light exposure energy.

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